

NON-PUBLIC?: N
ACCESSION #: 9108230204
LICENSEE EVENT REPORT (LER)

FACILITY NAME: TURKEY POINT UNIT 3 PAGE: 1 OF 3

DOCKET NUMBER: 05000250

TITLE: LOSS OF 3A AND 3B 4KV VITAL BUSES DUE TO GENERATOR
LOCKOUT
SIGNAL

EVENT DATE: 07/24/91 LER #: 91-003-00 REPORT DATE: 08/19/91

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:
VOLUNTARY

LICENSEE CONTACT FOR THIS LER:

NAME: David R. Powell, Superintendent of TELEPHONE: (305) 246-6559
Licensing

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

Power to Unit 3 4KV vital busses A and B was being backfed through the main and Auxiliary transformers from the switchyard. At 1729 on July 24, 1991, a main generator lockout signal tripped the generator output breaker, and power was lost to the Unit 3 vital busses for 14 minutes. The most probable cause is a Potential Transformer (PT) drawer improperly closed, resulting in inadequate contact between the drawer stabs and wipes. The stabs and wipes in all PT drawers have been cleaned and the wipes resilvered. The closure linkage has been checked and all drawers verified closed. Caution tags have been added to each drawer front (until permanent signs become available) to remind personnel to ensure drawers are closed completely and locked. A training brief has been distributed to all operators and electrical maintenance personnel describing the incident and the corrective actions. Control of the keys

to the PT cabinets has been transferred formally to Operations.

END OF ABSTRACT

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I. EVENT DESCRIPTION

Power to the Unit 3 4KV vital busses A and B was being backfed through the Main and Auxiliary transformers from the switchyard when power was lost to these busses. This occurred at 1729 on July 24, 1991. Power was restored manually from the Startup transformer, per 3-ONOP-004. The 3A bus was re-energized at 1740, and the 3B bus was re-energized at 1743. Spent Fuel Pool Cooling was verified back in service at 1748. The loss of power was caused by a generator lockout signal that had been activated by the trip of a main generator secondary neutral overvoltage relay. The norm

l automatic transfer to the Startup transformer had been disabled per the backfeed procedure, in preparation for safeguards testing. Although the Emergency Diesel Generators were functional, they did not auto start on the loss of power because the sequencers and bus stripping circuits were out of service, still undergoing preoperational testing, also in preparation for safeguards testing.

An Unusual Event per EPIP 20101, "Duties of Emergency Coordinator," was declared at 1755, and terminated at the same time since power had already been restored. The State Warning Point was notified of the Unusual Event at 1805, and the NRCOC was notified at 1818.

II. EVENT CAUSE

The cause of the event was investigated by Event Response Team (ERT) 91-003. Two potential root causes for the trip of the neutral overvoltage relay were identified. One cause was a high resistance fuse on the Phase C regulator primary potential transformer (PT). These fuses normally exhibit 2.9 to 3.1 ohms resistance; the phase C fuse resistance measured 94 ohms. The fuse has been sent to a forensic lab for failure analysis.

The second potential root cause was improper closure of the PT cabinet drawer containing the fuses and potential transformers. The PT drawer was found improperly shut. It was slightly misaligned, such that the stabs may not have made good contact with the wipes in the cabinet chassis. Additionally, the stabs exhibited slight corrosion on the surfaces of the stabs and wipes.

The ERT was not able to reproduce the event as part of the investigation. They did determine that the PT drawer could be closed and latched in a misaligned configuration, although it looked like it was properly closed. In this position, the stabs could be made to break contact with very little additional force on the drawer. The ERT postulated that jarring of a misaligned drawer, combined with less than optimum contact surfaces, might cause sufficient circulating current to energize the neutral overvoltage relay.

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III. EVENT SAFETY ANALYSIS

The unit was already shut down and defueled. The loss of the vital busses resulted in a loss of Spent Fuel Pool (SFP) cooling. Cooling of the SFP is necessary to remove residual heat, but the SFP Cooling System is not specifically required. No credit is taken for loading the SFP pumps within the first hour following a design basis accident. Safety Evaluation JPN-PTN-SENJ-90-051, section 3.1.b states that the SFP cooling loop may be shut down safely for reasonable periods of time, and provides the analysis to support cooling loop shutdown times up to 4 hours, depending on the heatup rate. Power was lost to SFP cooling for 19 minutes in this event. Spent fuel temperature increased less than one degree during the event.

Since the event involved actuation of protective devices performing their intended function, and since the short duration of the power outage was bounded by the existing analysis, the health and safety of the public were not adversely affected.

IV. CORRECTIVE ACTIONS

1. Power to the 3A and 3B 4KV vital busses was restored via the Startup transformer. Power was restored to the 3A ICW, 3A CCW, and to the Spent Fuel Pool cooling system.
2. The suspect fuse was replaced, and sent for failure analysis.
3. The stabs and wipes in the potential transformer drawers were cleaned and the wipes were resilvered. All drawers were verified to be properly closed, and locked.
4. Control of the locks to these drawers was transferred from Maintenance to Operations.
5. Training Brief 331 was issued to describe the event, and to remind

personnel of the importance of ensuring that all door interlock devices are properly secured.

6. Caution tags have been added to the front of each PT drawer to remind personnel to ensure drawers are closed completely and locked. Permanent signs are on order to replace these tags.

V. ADDITIONAL INFORMATION

Licensee Event Report 251/91-001 described a loss of power to the 4A 4KV bus, while the 4B 4KV bus was already out of service. The most probable cause of that outage was metal shavings, generated during control board modifications, causing a short in the Startup Transformer lockout circuit.

ATTACHMENT 1 TO 9108230204 PAGE 1 OF 1

P.O. Box 14000, Juno Beach, FL 33408-0420

FPL

AUG 19 1991
L-91-220A
10 CFR 50.73

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Re: Turkey Point Unit 3
Docket No. 50-250
Reportable Event: 91-003-00
Date of Event: July 24, 1991
Loss of 3A and 3B 4KV Vital Busses due to Generator
Lockout Signal

The attached voluntary Licensee Event Report 250-91-003-00 is being provided for information purposes only following the guidance provided by NUREG 1022, Supplement 1, Item 19.1.

Very truly yours,

T. F. Plunkett
Vice President

Turkey Point Nuclear

TFP/CLM/cm

enclosures

cc: Stewart D. Ebnetter, Regional Administrator, Region II,
USNRC,
Senior Resident Inspector, USNRC, Turkey Point Plant

an FPL Group Company

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